Priority Statement on the Magnetic Contribution to the Faraday Effect

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This document establishes priority regarding the prediction that the magnetic field of light contributes significantly to the Faraday effect.

In September 2025, I published the work:

Omeñaca Prado, C. (2025).
***The Next Electromagnetic Revolution: Maxwell's Equations in the Framework of Quarkbase Cosmology*.**
(File timestamped version attached.)

In this publication, the electromagnetic field is reinterpreted as pressure (E) and vorticity (B) within a frictionless etheric medium. The text explicitly states that:

- The magnetic field **is real vorticity** of the medium.
- Electromagnetic waves are **coupled oscillations** of pressure (E) and vorticity (B).
- Any interaction sensitive to vorticity must show **measurable magnetic torque**.
- The magnetic contribution to optical interactions **must increase at longer wavelengths**.

This constitutes a **direct theoretical prediction** that the magnetic component of light plays a non-negligible and measurable role in magneto-optical phenomena, including the Faraday effect.

A recent publication in *Scientific Reports* (November 2025) reports experimental evidence showing that the magnetic field contributes **17% to 75%** of the Faraday rotation depending on wavelength. These observations correspond exactly to the behaviour predicted in my September 2025 work.

This Priority Statement documents, for the scientific record, that the theoretical prediction regarding the magnetic contribution to the Faraday effect was publicly released prior to the new experimental study.

Signed,
Carlos Omeñaca Prado
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